Tetris clone — GW-BASIC writing example for Youtube – © Joel Yliluoma

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10 DEFINT A-Z
20 SCREEN 0:WIDTH 40,25: KEY OFF
70 ' Define the playing field.
80 DIM area(11,24)  ' Width and height, including borders.
30 ' Define all distinct tetromino shapes as bitmasks.
31 DATA CC,8C4,6C,4444,F0,264,C6,E4,4C4,4E0,464,8E,C88,E2,226,2E,88C,E8,622
32 REM e.g. 8C4 = 1000, 2E  = 0010
33 REM           1100        1110
34 REM           0100            and so on.
35 DIM shapes(18):  FOR a=0 TO 18: READ s$: shapes(a)=VAL("&H"+s$): NEXT
40 ' Define the mappings of block number -> block shape
41 DATA 0,0,0,0, 1,2,1,2, 3,4,3,4, 5,6,5,6, 7,8,9,10, 11,12,13,14, 15,16,17,18
45 DIM indices(28):  FOR a=0 TO 27: READ indices(a): NEXT
50 ' This function reads the given slot from the given block in given rotation.
55 DEF FNblock(bl,rot,x,y) = shapes(indices(bl*4+rot))AND bitmasks(y*4+x)
52 DIM bitmasks(15): FOR a=0 TO 14: bitmasks(a) = 2^a: NEXT'note: 2^15=overflow
60 ' Bounds checking function
61 DEF FNbounds(x,y) = x>=0 AND y>=0 AND x<12 AND y<=24
700 ' Subroutine for plotting the current block.
701 ' Params: curx,cury,curblock,currotate, c
710 FOR by=0 TO 3:FOR bx=0 TO 3
720   x=curx+bx: y=cury+by
730   IF FNbounds(x,y)AND FNblock(curblock,currotate,bx,by) THEN GOSUB 900
740 NEXT bx,by
750 RETURN
800 ' Subroutine for testing a block collision.
801 ' Params: curx,cury,curblock,currotate
802 ' Output: collided
810 FOR by=0 TO 3:FOR bx=0 TO 3
820   IF FNblock(curblock,currotate,bx,by)=0 THEN 860
830   x=curx+bx: y=cury+by
840   IF FNbounds(x,y)=0 THEN 860
850   IF area(x,y)AND 16 THEN collided=1: RETURN
860 NEXT bx,by
870 collided=0: RETURN
999 WIDTH 80: COLOR 7,0: PRINT "GAME OVER" : KEY ON: END
110 REM Flush input buffer: WHILE INKEY$<>"":WEND
130 c=colorwhenmove: GOSUB 700 'Draw the current block
140 ' Wait for input before dropping the block a bit
150 ti!=TIMER + 0.5
160 WHILE TIMER < ti!
250 WEND 'done
300 'Move down after timer elapsed
310 mx=curx: my=cury: mr=currotate
320 cury=cury+1: GOSUB 600      ' Try moving down
330 IF collided=0 THEN 150      ' Loop until collision
340 ' The block hit the ground.
350 c=colorwhendone: GOSUB 700  ' Draw at final color
499 GOTO 100                    ' Generate a new block
600 ' Try moving to a given direction
601 ' Params: curx,cury,curblock,currotate: Suggested new position
602 '         mx,my,mr:             Current position
603 ' Output: collided=1 -> No move (curx,.. reset to mx,..)
604 '         collided=0 -> Moved
605 '        In either case, mx,my,mr will be overwritten.
610 GOSUB 800 'Test move
620 SWAP mx,curx:SWAP my,cury:SWAP mr,currotate
630 IF collided THEN RETURN 'No move
640 ' No obstacle for moving block
650 c=0: GOSUB 700           ' Undraw at old location
660 SWAP mx,curx:SWAP my,cury:SWAP mr,currotate
670 c=colorwhenmove: GOTO 700 ' Draw at new location
120 dropping=0          ' *** TESTING BARRIER
170   k$ = INKEY$
180   mx=curx: my=cury: mr=currotate
190   IF k$="w" THEN currotate=(currotate+1)AND 3: dropping=0: GOSUB 600
200   IF k$="a" THEN curx=curx-1: dropping=0: GOSUB 600
210   IF k$="d" THEN curx=curx+1: dropping=0: GOSUB 600
220   IF k$="q" THEN GOTO 999  ' Gameover if request quit
230   IF k$="s" OR dropping=1 THEN 300 'Try moving down
240   IF k$=" " THEN dropping=1
90 ' Initialize and draw the playing field.
92 DEF FNempty$(x) = "."
95 c=23: FOR x=0 TO 11: FOR y=0 TO 24: GOSUB 900: NEXT y,x
96 c=0:  FOR x=1 TO 10: FOR y=0 TO 23: GOSUB 900: NEXT y,x
900 ' Subroutine for drawing a "pixel", i.e. one block slot.
901 ' Params: x,y, c
910 LOCATE y+1,x+1: area(x,y)=c
920 IF c THEN COLOR c AND 15: PRINT CHR$(219); : RETURN
930 COLOR 1: PRINT FNempty$(x);
940 RETURN          ' *** TESTING BARRIER
100 ' Main loop. Begin by generating a new piece.
101 curblock  = INT(RND * 7)
102 currotate = INT(RND * 4)
103 curx = 4 : cury = -2
104 colorwhenmove = curblock+1
105 colorwhendone = curblock+25
106 ' Test whether the new block immediately collides
107 GOSUB 800: IF collided THEN GOTO 999 'Gameover if cannot
    spawn block
```

Written in July 2010.

P.S. The colors in this code are hints for me in directing the Youtube video. — Joel Yliluoma

```
 ' *** TESTING BARRIER
400 ' Make full lines empty
410 FOR y=1 TO 23
420   x=1: WHILE x<=10 AND area(x,y)>0: x=x+1: WEND
421   empty=x>10
430   IF empty THEN c=0: FOR x=1 TO 10: GOSUB 900: SOUND
   40+RND*200,.1:NEXT
440 NEXT
81 DIM emptyline(23)
405 emptycount=0
422   emptyline(y) = empty: IF empty THEN
   emptycount=emptycount+1
423 NEXT
424 IF emptycount=0 THEN 499
425 empty$ = ".." + MID$("SINGLEDOUBLETRIPLETETRIS",
   emptycount*6-5, 6) + ".."
426 DEF FNempty$(x) = MID$(empty$,x,1)
427 FOR y=1 TO 23
428   empty = emptyline(y)
445 DEF FNempty$(x) = "."
450 ' Drop non-empty lines that are above empty lines
451 y=23 'Target of next non-empty line = bottom
460 FOR source=23 TO 1 STEP -1
465   x=1: WHILE x<=10 AND area(x,source)=0: x=x+1: WEND
470   empty = x>10
480   IF y<>source THEN FOR x=1 TO 10: c=area(x,source): GOSUB 900: NEXT
490   IF NOT empty THEN y=y-1
495 NEXT
496 ' Clear the top in case it was not cleared yet
497 c=0
498 WHILE y>1: FOR x=1 TO 10: GOSUB 900: NEXT: y=y-1: WEND
462   SOUND 30+source*40,.5
```